4B313

STATE OF COLORADO

Roy Romer, Governor
Patricia A. Nolan, MD, MPH, Executive Director

Dedicated to protecting and improving the health and environment of the people of Colorado

4300 Cherry Creek Dr. S.
Denver, Colorado 80222-1530
Phone (303) 692-2000

Laboratory Building
4210 E. 11th Avenue
Denver, Colorado 80220-3716
(303) 691-4700

Colorado Department
of Public Health
and Environment

July 25, 1994

Mr. Steven W. Slaten
U.S. Department of Energy
Rocky Flats Office
P.O. Box 928
Golden, Colorado 80402-0928

000044838

RE: Draft Solvent Extraction Treatability Study Work Plan

Dear Mr. Slaten,

The Colorado Department of Public Health and Environment, Hazardous Materials and Waste Management Division (the Division), has reviewed the above referenced document and is providing the attached comments.

The Division has learned that DOE has already commenced work on this treatability study without agency concurrence on the Work Plan. Fortunately, most of our comments are minor and should not have significant impact on the success of the study. However, the Division remains concerned about the experimental test sequence (see attached comment #4) and its inability to provide enough information to select an optimized process. DOE's unilateral decision to proceed with this study's implementation may risk that portion of the Work Plan's objectives.

If you have any questions regarding these matters, please call Dave Norbury at 692-3415.

Sincerely,

Joe Schieffelin, Unit Leader
Rocky Flats IAG Unit
Hazardous Waste Control Program

cc: Arturo Duran, EPA
Norma Castaneda, DOE
Mike Harris, DOE/NFT
[redacted]G&G
Laura Perrault, AGO
Steve Tarlton, RFPU

A-SW-002631

Colorado Department of Public Health and Environment
Comments
Draft Solvent Extraction Treatability Study Work Plan

1) Section 1.2: The Division questions the need for two separate soil samples - no justification is given to support the need. The treatability study seeks to answer the question "will solvent extraction be effective in remediating radionuclide-contaminated soil?". It seems this question can be adequately answered with one well chosen sample. If a good reason exists to run more than one soil matrix through the tests, it needs to be provided in the Workplan.

2) Figure 2-1: Are nine sample locations required? The key measurement points are at the input (sample location 1, feed) and output (locations 5, 7, 8, and 9) stages of the flow schematic. The test objectives listed in Section 3.0 can still be met at lower costs without the extensive intermediary sample locations proposed in the Figure.

3) Table 3-1: Where did the TSBs for gross alpha, gross beta, and total uranium come from? The Division is not aware of any soil standards outside of the draft PRG effort referenced for the plutonium and americium values.

4) Section 4.2: Each unique feed matrix is to be subject to five test runs - one with the "standard" conditions, and four with modifications to the standard conditions. The text suggests evaluating plutonium removal as a function of as many as seven variables. This will be impossible to do in four test runs.

DOE has to make a choice between keeping the experimental design simple, with only one or two key input parameters varying over four runs, or committing the resources necessary to adequately characterize the effects of multiple process variables. Previous experimental designs under the DOE Treatability Study Program have suffered from the same flaw of trying to examine too many variables in a study of limited scope (and budget). As described, the Phase I tests will not be able to provide the information necessary to select the "apparent optimized process" proposed for Phase II tests.

5) Section 4.3.2: What is the justification for (and advantages of) the 150°F extraction stage? The treatment technology description (Section 2.0) suggests that triethylamine is immiscible with water above 140°F.

6) Table 4-2: See comment 2.

7) Table 6-1: Since the detection limits are not provided, the Division can only assume the analytical methods will be sufficient to meet the TSBs presented in Table 3-1.

8) Table 6-2: Of all the possible measurement endpoints, the dried treated solids are one of the most important. However, no analysis is proposed for dried treated solids in this Table's analytical requirements.

9) Section 12.0: Can the tests for different sample types be run concurrently? The schedule suggests needing 30 days for Phase I tests, when each sample type requires only 10 days.

The Division did not review Appendices A and B (Health and Safety Plan, Quality Assurance Addendum).